



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

March 4, 2013

Engineering/Planning Division
Geo-Environmental Engineering Branch

Ms. Lynne Jennings
EPA - New England, Region 1
5 Post Office Square - Suite 100
Mail Code OSRR7-3
Boston, Massachusetts 02109-3912

Mr. Len Pinaud
Commonwealth of Massachusetts
Department of Environmental Protection – Southeast Regional Office
20 Riverside Drive
Lakeville, Massachusetts 02347

Re: Impact Area Groundwater Study Program (IAGWSP), Final Non-Specific and Small Operable Unit
Interim Environmental Monitoring Report, Sampling Year 2012, dated February 2013

Dear Ms. Jennings and Mr. Pinaud:

On behalf of the Army National Guard's Impact Area Groundwater Study Program (IAGWSP), the U.S. Army Corps of Engineers (USACE) is pleased to provide the Final version of the subject report.

The Draft version of this document was submitted in August 2012. Comments were received from the U.S. Environmental Protection Agency (EPA) and from the Massachusetts Department of Environmental Protection (MassDEP) in letters dated January 16, 2013, and August 23, 2012, respectively. A Response to Comments Letter (RCL) was written on January 24, 2013. A signed Project Note (Non-Specific and Small Operable Unit Monitoring Discontinuation), which summarizes the approved changes to the chemical monitoring well network is included as Appendix A of this report.

Please contact Dave Hill of the IAGWSP, or Marie Wojtas of the USACE, if there are any questions.

Sincerely,

Anthony T. Mackos, P.E.
Chief, Engineering/Planning Division

Enclosure
EPA 1 copy and 1 CD
MassDEP 1 copy and 1 CD

Copy Furnished:

IAGWSP: Ben Gregson (letter only), Dave Hill (1 copy), and Marcia Goulet (5 copies and 2 CDs)

EPA: Jane Dolan (1 copy), Erin Sanborn (1 CD)



Impact Area Groundwater Study Program

FINAL

Non-Specific and Small Operable Unit Interim Environmental Monitoring Report Sampling Year 2012

**Camp Edwards
Massachusetts Military Reservation
Cape Cod, Massachusetts**

February 2013

Prepared for:

Army National Guard
Impact Area Groundwater Study Program
Camp Edwards, Massachusetts

Prepared by:

U.S. Army Corps of Engineers
New England District
Concord, Massachusetts

DISCLAIMER

This document has been prepared pursuant to government administrative orders (U.S. EPA Region I SDWA Docket No. I-97-1019 and 1-2000-0014) and is subject to approval by the U. S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the authors and not necessarily those of the Environmental Protection Agency.

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION.....	1
2.0 SAMPLING PROGRAM.....	2
3.0 MONITORING RESULTS	3
4.0 RECOMMENDATIONS.....	4
5.0 REFERENCES.....	5

FIGURES

Figure 1-1 Location of Monitoring Well MW-28S

TABLES

Table 3-1 Groundwater Monitoring Results – Volatile Organic Compounds in
MW-28S

APPENDIX

Appendix A Project Note – Non-Specific and Small Operable Unit Monitoring
Discontinuation

1.0 INTRODUCTION

An Impact Area Groundwater Study Program (IAGWSP) interim plan for monitoring groundwater quality was developed for small operable units (OUs), and ambient monitoring wells and water supply wells not associated with established OUs. Twenty-two wells were originally considered in the *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Plan* (AMEC, 2006). They included: ten wells installed as part of the IAGWSP Small Arms Ranges and Phase IIb investigations; five ambient water quality wells installed during Phase I initial investigations; and seven on-base water supply wells.

Historical laboratory results for samples collected from these wells revealed relatively few significant contaminant detections. As a result, 21 of the 22 initial wells were removed from the sampling network. Annual groundwater monitoring for volatile organic compounds (VOCs) was proposed in the remaining well, MW-28S, because of a one-time detection of 1,2-dibromo-3-chloropropane. MW-28S is located at the southern boundary of the Impact Area (Figure 1-1).

On January 28, 2010, the IAGWSP provided EPA and MassDEP with a detailed map of the wells being sampled and their associated Operable Units, identifying wells where sampling has been discontinued. This map and the accompanying table will be used in the future as final Environmental Monitoring Plans are established. A base-wide well review will be initiated in 2013 to determine the need for long term monitoring of wells not associated with specific Operable Units, including those wells previously monitored under the Non-Specific and Small Operable Unit Interim Groundwater Monitoring Plan.

2.0 SAMPLING PROGRAM

Beginning in 2006, samples were collected once per year from MW-28S for analysis of VOCs in accordance with the groundwater monitoring plan. For samples collected in 2006 and 2007, results were documented in the *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Plan Letter Report* (USACE, 2008); results for samples collected in 2008, 2009 and 2010 were documented in a report entitled *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Report, Sampling Years 2008, 2009, and 2010* (USACE, 2010), and results for the sample collected in 2011 were documented in a report entitled *Draft Non-Specific and Small Operable Unit Interim Environmental Monitoring Report, Sampling Year 2011* (USACE, 2011). Results for the sample collected from MW-28S during the current 2012 monitoring period are presented herein.

3.0 MONITORING RESULTS

One sample was collected from MW-28S in June of 2012. No detectable concentrations of VOCs were reported in that sample.

In prior sampling rounds, only trace concentrations of the VOCs 1,2-dibromo-3-chloropropane (0.2J µg/L), chloromethane (0.3J µg/L), and 1,2-dichlorobenzene (0.28J µg/L) have been observed. 1,2-dibromo-3-chloropropane and chloromethane were reported in the October 2005 sample and neither has been detected in seven subsequent sampling events; 1,2-dichlorobenzene was observed in the 2008 sample and has not been detected in subsequent rounds (Table 3-1).

Analytical data has been validated according to the *Final IAGWSP Generic Quality Assurance Project Plan* (QAPP; Tetra Tech, 2012). Associated data packages and data validation reports are accessible on the Massachusetts Military Reservation Electronic Data Management System (EDMS).

4.0 RECOMMENDATIONS

In the absence of significant and repeatable VOC detections during the current reporting period and in prior sampling years, continued sampling of well MW-28S is no longer recommended. Thus, no further monitoring is proposed for the Non-Specific and Small OU groundwater monitoring program. The approved change to the monitoring well network (groundwater monitoring discontinuation) is described in the Project Note included as Appendix A of this document. A base-wide well review will be initiated in 2013 to determine the need for long term monitoring of wells not associated with specific Operable Units, including those wells previously monitored under the Non-Specific and Small Operable Unit Interim Groundwater Monitoring Plan.

5.0 REFERENCES

AMEC, 2006. *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Plan 2006*. Impact Area Groundwater Study Program, Massachusetts Military Reservation, Cape Cod, Massachusetts. Prepared by AMEC Earth and Environmental, Westford, Massachusetts. February 10, 2006. (EDMS Document ID 8414)

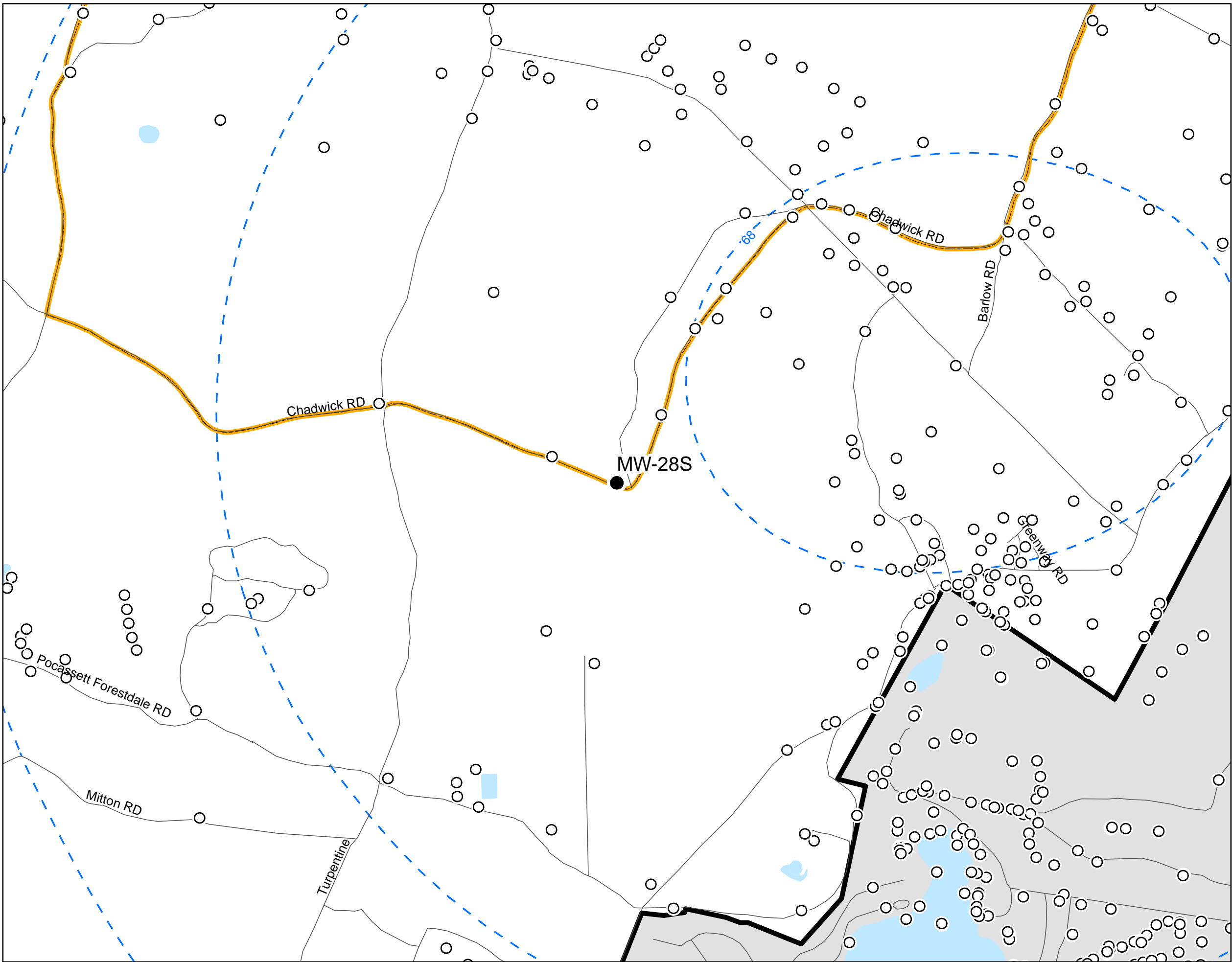
Tetra Tech, 2012. Final IAGWSP Generic Quality Assurance Project Plan. Impact Area Groundwater Study Program, Massachusetts Military Reservation, Cape Cod, Massachusetts. Prepared by Tetra Tech EC, Inc. February, 2012. (EDMS Document ID 113291)

USACE, 2008. *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Plan Letter Report*. Impact Area Groundwater Study Program, Massachusetts Military Reservation, Cape Cod, Massachusetts. Prepared by U.S. Army Corps of Engineer, New England District, Concord, Massachusetts. March 19, 2008. (EDMS Document ID 9082)

USACE, 2010. *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Report, Sampling Years 2008, 2009, and 2010*. Impact Area Groundwater Study Program, Massachusetts Military Reservation, Cape Cod, Massachusetts. Prepared by U.S. Army Corps of Engineers, New England District, Concord, Massachusetts. August 5, 2010. (EDMS Document ID 105013)

USACE, 2011. *Draft Non-Specific and Small Operable Unit Interim Groundwater Monitoring Report, Sampling Year 2011*. Impact Area Groundwater Study Program, Massachusetts Military Reservation, Cape Cod, Massachusetts. Prepared by U.S. Army Corps of Engineers, New England District, Concord, Massachusetts. July 26, 2010. (EDMS Document ID 111482)

FIGURES

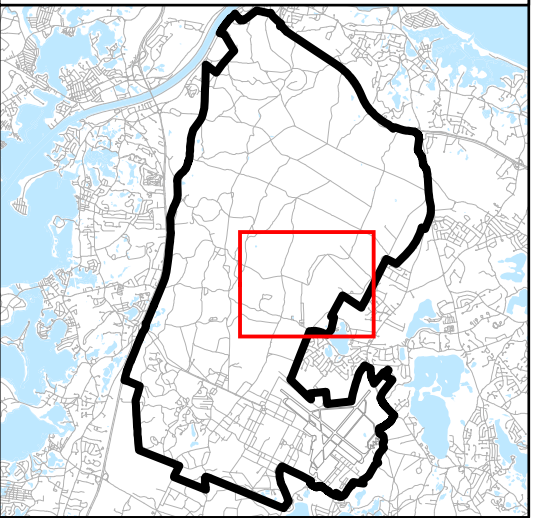


**Impact Area
Groundwater Study Program**

LEGEND

- Monitoring Well Included in the Network
 - Monitoring Well
 - ▭ MMR Boundary
 - ▭ Impact Area Boundary
- Groundwater Elevation Contours**
(in feet above NGVD)
- Water Level Contours - MMR10

LOCATION MAP



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute Topographic Maps. Source: MassGIS

TITLE

Location of Monitoring Well MW-28S



US Army Corps
of Engineers
New England District
M:\MMR\2012\Sitewide\Figures\MW-28S.pdf
M:\MMR\2012\Sitewide\Figures\MW-28S.mxd
July 31, 2012 DWN: MTW CHKD: PJM MAW

TABLES

Table 3-1
Groundwater Monitoring Results
Volatile Organic Compounds in MW-28S

Date Sampled	Top of Screen (ft msl)	Bottom of Screen (ft msl)	Groundwater Elevation (ft msl)	Sample Type	Analyte	Method	Result (ug/L)	Flag Code	MDL	RL
6/4/2012	74.12	64.12	72.03	N	None Detected	SW8260B	ND			
5/19/2011	74.12	64.12	72.95	N	None Detected	SW8260B	ND			
5/11/2010	74.12	64.12	75.04	N	None Detected	SW8260B	ND			
5/6/2009	74.12	64.12	70.09	N	None Detected	SW8260B	ND			
5/15/2008	74.12	64.12	70.63	N	1,2-DICHLOROBENZENE	SW8260B	0.28	J	0.07	1
5/4/2007	74.12	64.12	71.32	N	None Detected	SW8260B	ND			
6/19/2006	74.12	64.12	71.45	N	None Detected	CVOL	ND			
10/12/2005	74.12	64.12	69.9	N	1,2-DIBROMO-3-CHLOROPROPANE	CVOL	0.2	J	0.19	1
10/12/2005	74.12	64.12	69.9	N	CHLOROMETHANE	CVOL	0.3	J	0.29	1
10/12/2005	74.12	64.12	69.9	FD	CHLOROMETHANE	CVOL	0.3	J	0.29	1
10/4/2004	74.12	64.12	*	N	None Detected	CVOL	ND			
9/24/2003	74.12	64.12	68.62	N	None Detected	CVOL	ND			
7/30/2001	74.12	64.12	68.62	N	None Detected	CVOL	ND			
8/9/2000	74.12	64.12	68.14	N	None Detected	CVOL	ND			
9/17/1999	74.12	64.12	68.14	N	None Detected	CVOL	ND			
3/19/1999	74.12	64.12	68.14	N	None Detected	CVOL	nD			
11/3/1997	74.12	64.12	68.14	N	None Detected	CVOL	ND			

NOTES:

ft msl = feet above mean sea level

ug/L = micrograms per liter

MDL = method detection limit

RL = laboratory reporting limit

* GW elevation for 2004 sampling round unavailable

N = primary field sample

FD = field duplicate sample

ND = not detected

J = estimated concentration

Highlighted analytes meet or exceed one or more IAGWSP groundwater screening values

APPENDIX A

PROJECT NOTE

Client, Project and Location:

Impact Area Groundwater Study Program
Non-Specific and Small Operable Unit Chemical Monitoring Network
Camp Edwards, MA

Subject: Non-Specific and Small Operable Unit Monitoring Discontinuation

Date: January 31, 2013

PURPOSE

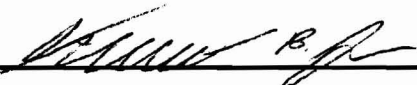
The purpose of this Project Note (PN) is to document agency concurrence with the discontinuation of activities associated with the Non-Specific and Small Operable Unit groundwater monitoring program, as recommended in the Draft Non-Specific and Small Operable Unit Interim Environmental Monitoring Report, Sampling Year 2012, dated August 2012. This action is recommended pending a base-wide review of monitoring needs at wells that are not included in an approved operable unit-specific groundwater monitoring plan.

CONCURRENCE


Concurrence with the recommendations presented in this project note are represented by the signatures below:

31 Jan 2013


USEPA Representative

1/31/2013


MassDEP Representative



IAGWSP Representative